## ABSTRACT OF THE DISCLOSURE

The present invention discloses a system for analyzing elements contained in a sample in very slight amounts, such as C, S, O, N, H and the like in materials, such as steel and ceramics. An element analyzer can gasify the sample elements in an appropriate gas, such as oxygen gas in a high-frequency heating furnace or an electric resistant furnace. Resulting gas can be introduced into a mass spectrometer to permit a quantitative analysis of the sample elements. A metal sample can be levitated and heated and melted with induction current for producing the resultant gas for introduction to a mass spectrometer.